

REMARKS

Claims 5 and 7 have been amended to delete “any one of”. The objection to these claims, therefore, should be withdrawn.

Although the Examiner asserts that “Tsutsumi discloses active material which include a high electron-conductive material and/or having a coating of a high electron-conductive material on the surface” on page 4 of the Office Action, the assertion is erroneous. The Tsutsumi ‘507 particles are suspended in the liquid (electrolytic solution) in each vessel (see col. 6, lines 1-10) and are maintained dispersed with a fluidizing fluid (col. 6, lines 9-14). These particles clearly cannot form a fixed layer as required in applicants’ invention.

It is asserted in the first Office Action that “The inventive concept of designing a battery by forming an active material particle with high electron-conductive material or coating it with high electron-conductive material on the surface is obvious in view of Dansui.” It is submitted that this is not the situation for the instantly claimed invention for the following reasons:

The teachings of the Dansui 6,033,805 patent are clearly summarized in claim 1 of the Dansui ‘805 patent: “A nickel-hydrogen secondary battery comprising a **positive electrode comprising a first nickel foil** and an active material layer consisting essentially of nickel hydroxide solid solution powder formed on a surface of the first nickel foil, a **negative electrode comprising a second nickel foil** and a hydrogen absorbing alloy powder layer formed on a surface of the second nickel foil, and a porous separator consisting essentially of a polymer resin.”.

Dansui ‘805 discloses a nickel-hydrogen battery comprising a **positive electrode comprising a first nickel foil** and a **negative electrode comprising a second nickel foil**. But Dansui fails to disclose or suggest designing a battery by forming active material particles. With respect to this point, Applicants’ claimed invention is decisively and patentably different from the Dansui ‘805 patent.

On the other hand, since the active material particles set forth in the claims at issue include a high electron-conductive material and/or have a coating of a high electron-conductive material on the surface, even the electrons discharged within the active material particles which are distant from the current collector can move to the current collector. The foils of the Dansui '805 patent do not have such a capability. Accordingly, although the active material particles filled in the vessels are not circulated, a three-dimensional battery can be formed. As a result, the claimed invention has the following advantages: (1) an active material particle circulating device is not necessary for the claimed invention; (2) the recovery and replacement of the degraded active material particles is possible for the claimed invention; (3) enlargement of scale is possible for the claimed invention; and (4) the energy density is larger for the claimed invention than for the use of the prior art foils.

The above advantages cannot be obtained by Tsutsumi, Dansui, Ikoma and/or Katsumoto.

In conclusion, it would not have been obvious to a person of ordinary skill in the art at the time of the invention to combine Tsutsumi and Dansui for the benefit of designing active material particles with high electron-conductive material for enhanced capacity density. It would not have been obvious to a person of ordinary skill in the art at the time of the invention to combine Tsutsumi and Dansui with Ikoma for the benefit of designing active material particles with high electron-conductive material to form a fixed layer. Further, it would not have been obvious to a person of ordinary skill in the art at the time of the invention to combine Tsutsumi with Katsumoto for the benefit of designing a battery with active material particles that are porous.

It is submitted that all claims are now of proper form and scope for allowance. Early and favorable consideration is respectfully requested.

Application No. 10/510,416
Amendment dated October 7, 2005
Reply to Office Action of July 11, 2005

Docket No.: 19036/40136

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 13-2855, under Order No. 19036/40136 from which the undersigned is authorized to draw.

Dated: October 7, 2005

Respectfully submitted,

By Richard H. Anderson

Richard H. Anderson

Registration No.: 26,526

MARSHALL, GERSTEIN & BORUN LLP

233 S. Wacker Drive, Suite 6300

Sears Tower

Chicago, Illinois 60606-6357

(312) 474-6300

Attorney for Applicant